

Yet Another Presentation
to the IMRC

by
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Can a
Vehicle

Escape

its Past????

- Do many vehicles fail repeatedly?
- Do Tamperers and Gross Polluters persist?
- Do some older vehicles pass every time?
- Are test histories related to which vehicles are "retired"?

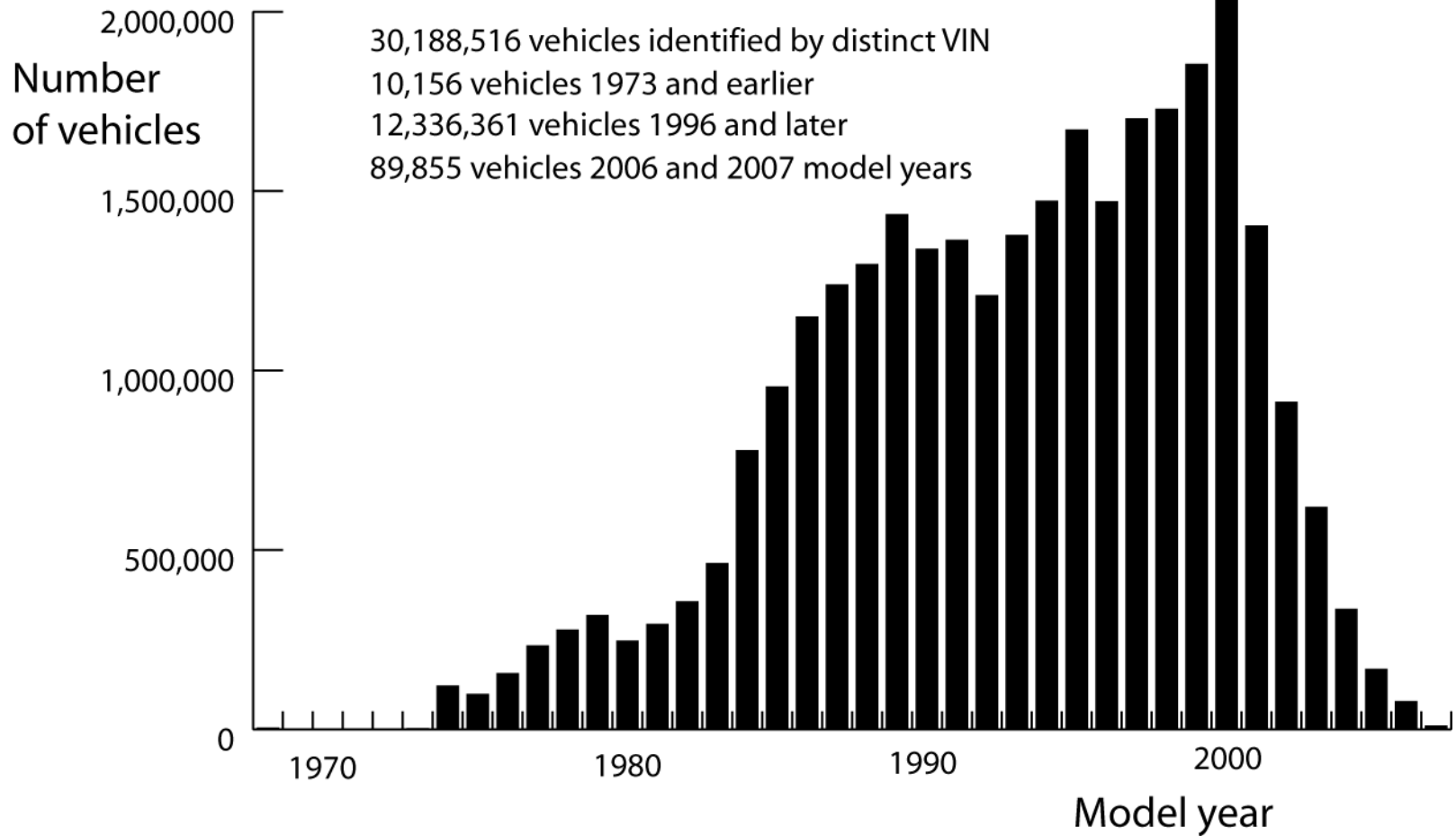
Tests from 1/1/98 through 3/31/07

Total records	117,270,918
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|-----------------------------|-----------|
| ➤ Training tests | 1,088,036 |
| ➤ Doubled records | 195,501 |
| ➤ Implausible VIN and plate | 16,895 |
| ➤ VIN only with aborts | 37,813 |

Records used	115,932,673
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Vehicles ever Smog Checked over 1/1/98 through 3/31/07



	"First" test in cycle	Vehicle's history
Records involved	54,993,222	115,932,673
Vehicles involved	22,791,123	30,188,516
Fail [F, G, or T] (%)	14.22	27.86
Gross polluter (%)	3.12	7.71
Tampered (%)	0.97	2.89

Percentage of vehicles whose histories include:

Ever a fail	27.86
Ever a gross polluter	7.71
Ever a tamper	2.89
Ever an emissions fail	19.91
Ever a visual fail	5.86
Ever an OBDII fail	6.89
As % of 1996-and-after vehicles	16.83
Ever an abort	15.29
Only a single test	19.49

Percentage of the 5,858,546 Vehicles Whose History is a Single Test:

A fail [F, G, or T]	2.31
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(135,320 vehicles)

Change-of-ownership	39.17
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(2,294,576 vehicles)

Out-of-state	34.32
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(2,010,407 vehicles)

Prevalence of Aborts

Percentage of all records (6,452,686 records)	5.57
Percentage of ASM tests (5,289,264 records)	6.56
Percentage not retested within 12 hours (1,043,207 vehicles)	16.17

Percentage of the 8,410,442 Vehicles Whose History Includes a Fail:

Pass within 12 hours of fail (2,368,218 vehicles)	28.15
Fails days apart within same cycle (1,458,789 vehicles)	17.34
Fail unresolved with a pass (1,585,064 vehicles)	18.85

History of VIN JT2AE82E6H3519635,
CA Plate 2FLX226, a 1987 Toyota Corolla,
a “Smoker” in L.A. (reported 01/31/07)

05/18/99	RG195617	Q (pretest)	T
10/19/02	TC220770	C (c-of-owner)	G
10/21/02	TD204867	C (c-of-owner)	P
04/21/04	TC226897	P (directed)	G
05/14/04	TB203510	P (directed)	P
01/15/07	TD233428	P (directed)	T
01/17/07	TD233428	P (directed)	P

History of VIN WBAAA1300K8254750,
CA Plate 2PON759, a 1989 BMW 3-Series,
Another “Smoker” in L.A. (reported 11/09/06)

08/26/00	RG189835	B (biennial)	F
08/28/00	RE210667	B (biennial)	P
06/18/02	TH148821	P (directed)	F
07/18/02	TJ218074	P (directed)	P

Vehicles With Gaps in Their Pasts

- 1,387,502 vehicles have a gap of three years or more within their histories

Of these, 62,344 vehicles (4.49%) left California and re-entered as out-of-state

- 1,174,261 vehicles have a gap at the start of their histories (from 1998) given their model year

Of these, 96,499 vehicles (8.21%) arrived from out-of-state

Corrections to VINs

One example:

1GNCM15ZXJB132046, CA 2HYU769, 11/09/98

1GNCM15ZXJB132016, CA 2HYU769, 11/06/99 (and 8 other records)
[for a 1988 Chevy Astro]

Another example:

G6AL5785EE632168 , CA 2BGH552, 07/12/01

1G6AL5785EE632168, CA 2BGH552, 11/03/99 (and 11 other records)
[for a 1984 Cadillac El Dorado]

Among the 901,124 records with dubious VINs,
289,630 such corrections were made,
involving 169,363 vehicles

History of VIN 1VWBA0173HV063851,
CA Plate 2GKM228, a 1987 VW Golf,
an “Exemplary” Vehicle

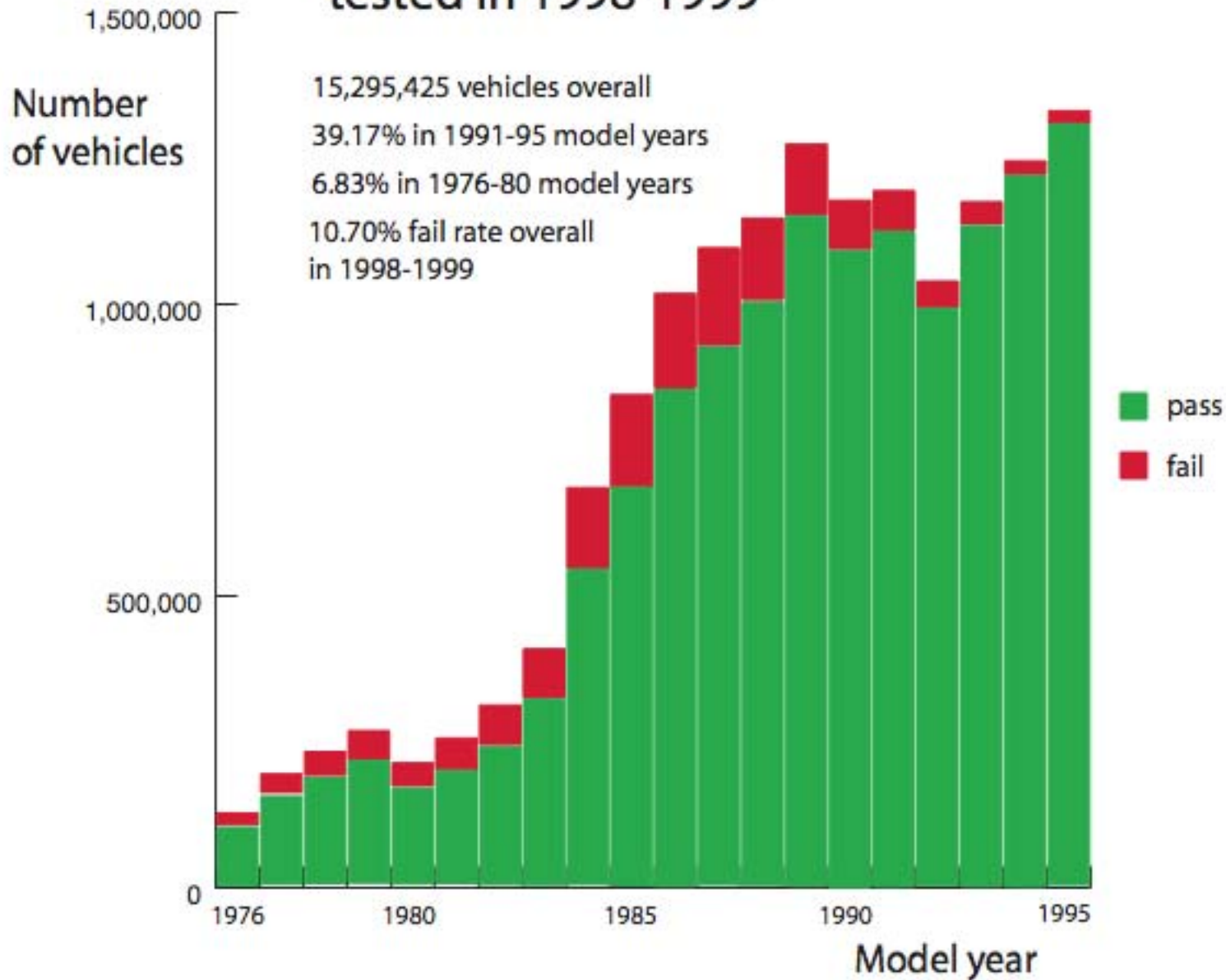
08/24/99	RH195901	B (biennial)	A
08/26/99	RH195901	B (biennial)	P
10/02/01	RA214615	Q (pretest)	P
10/05/01	TG206043	C (c-of-owner)	P
10/21/03	TA219714	P (directed)	P
07/14/05	TA219714	P (directed)	P

Persistence of Test Results

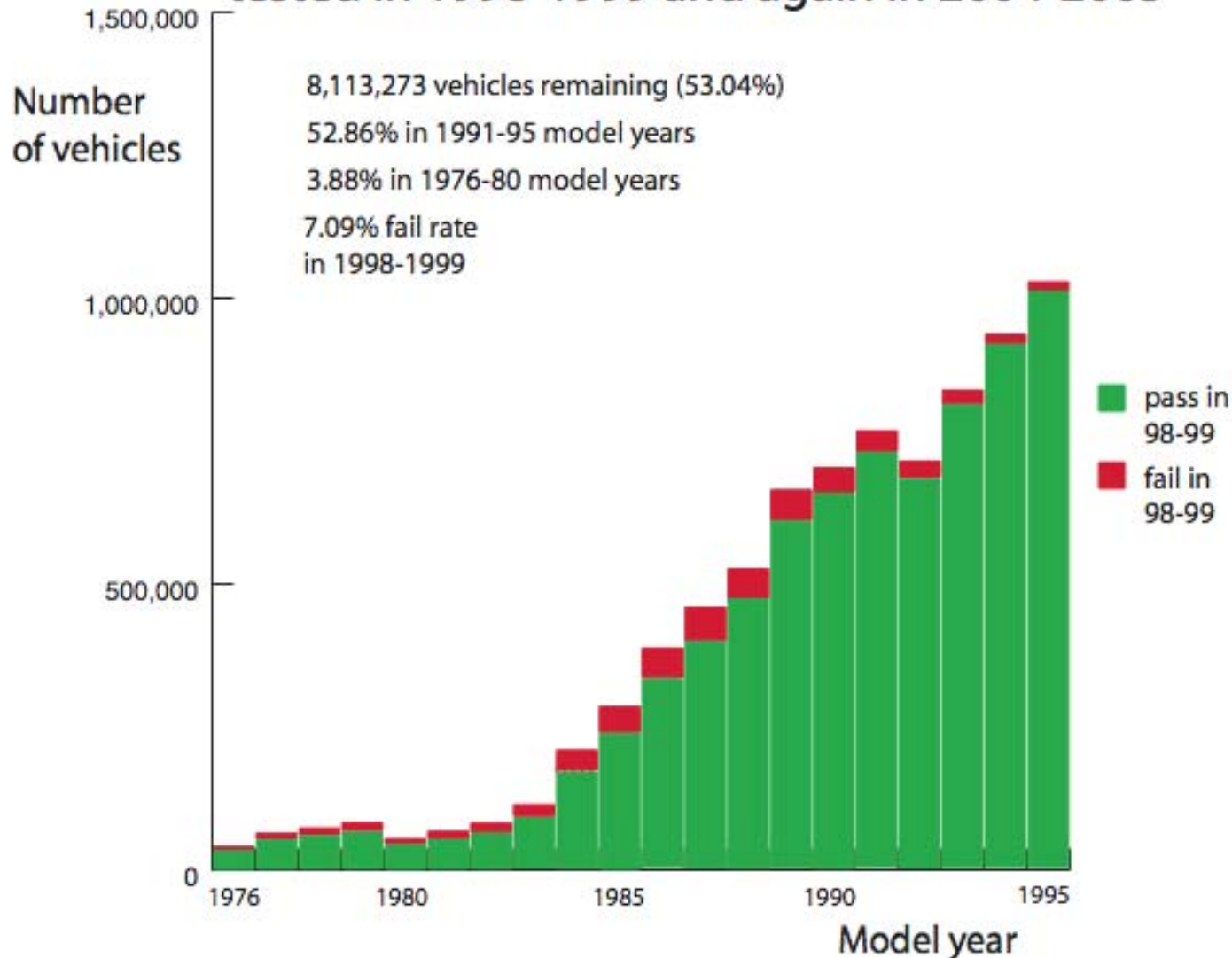
- 5,698,385 vehicles (18.88% of all vehicles) passed “purely” in four or more consecutive cycles
- Of these, 2,526,649 (8.37% of all vehicles) passed “purely” in five or more consecutive cycles
- 2,349,455 vehicles (27.93% of all vehicles ever to fail) failed in two or more cycles
- 562,251 vehicles (6.69% of all vehicles ever to fail) failed in three or more cycles
- 99,670 vehicles (1.19% of all vehicles ever to fail) failed in four or more cycles

Note: A new “cycle” presumes a test at least 270 days later.

Vehicles of model years 1976-1995 tested in 1998-1999



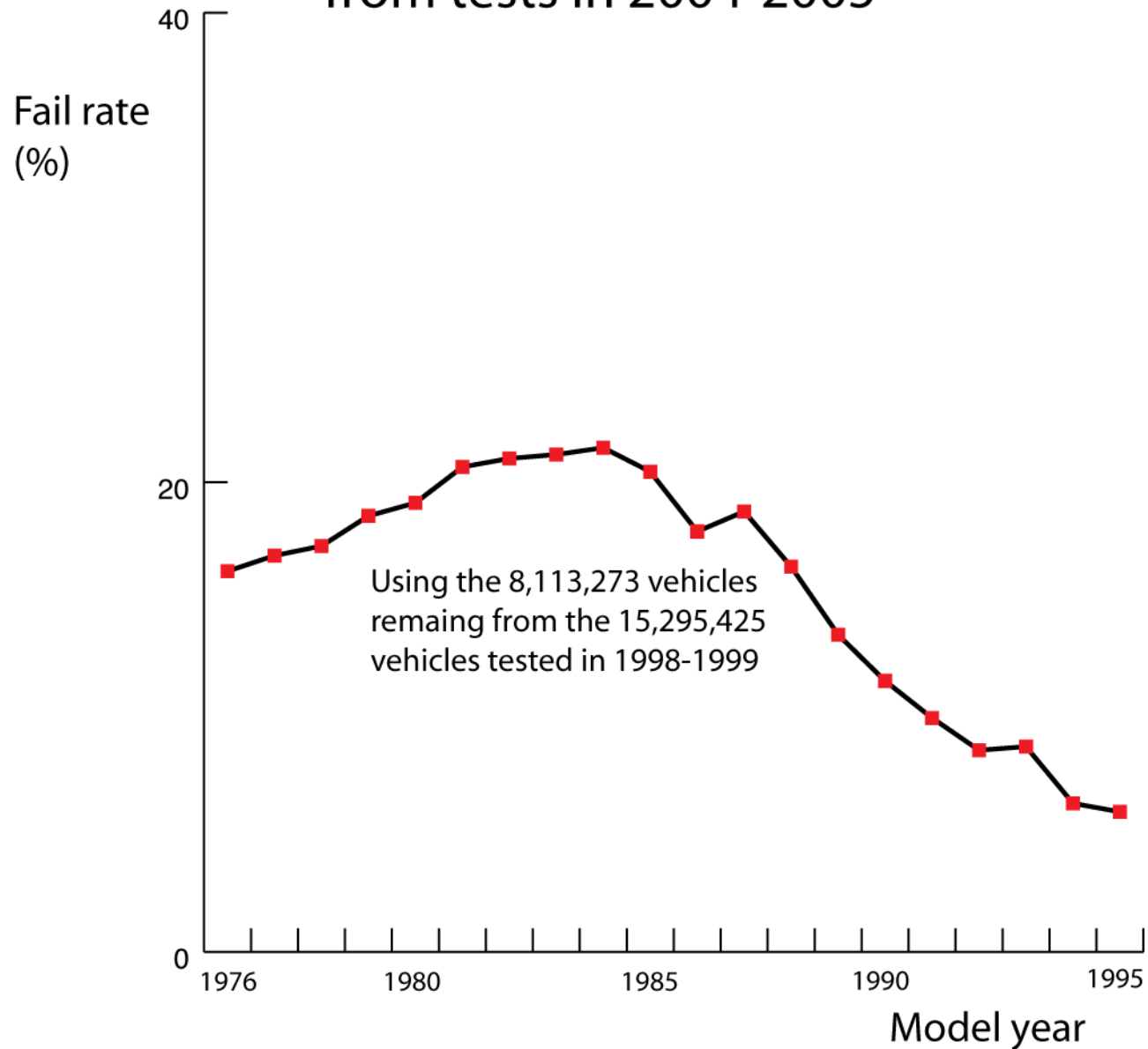
Vehicles of model years 1976-1995 tested in 1998-1999 and again in 2004-2005



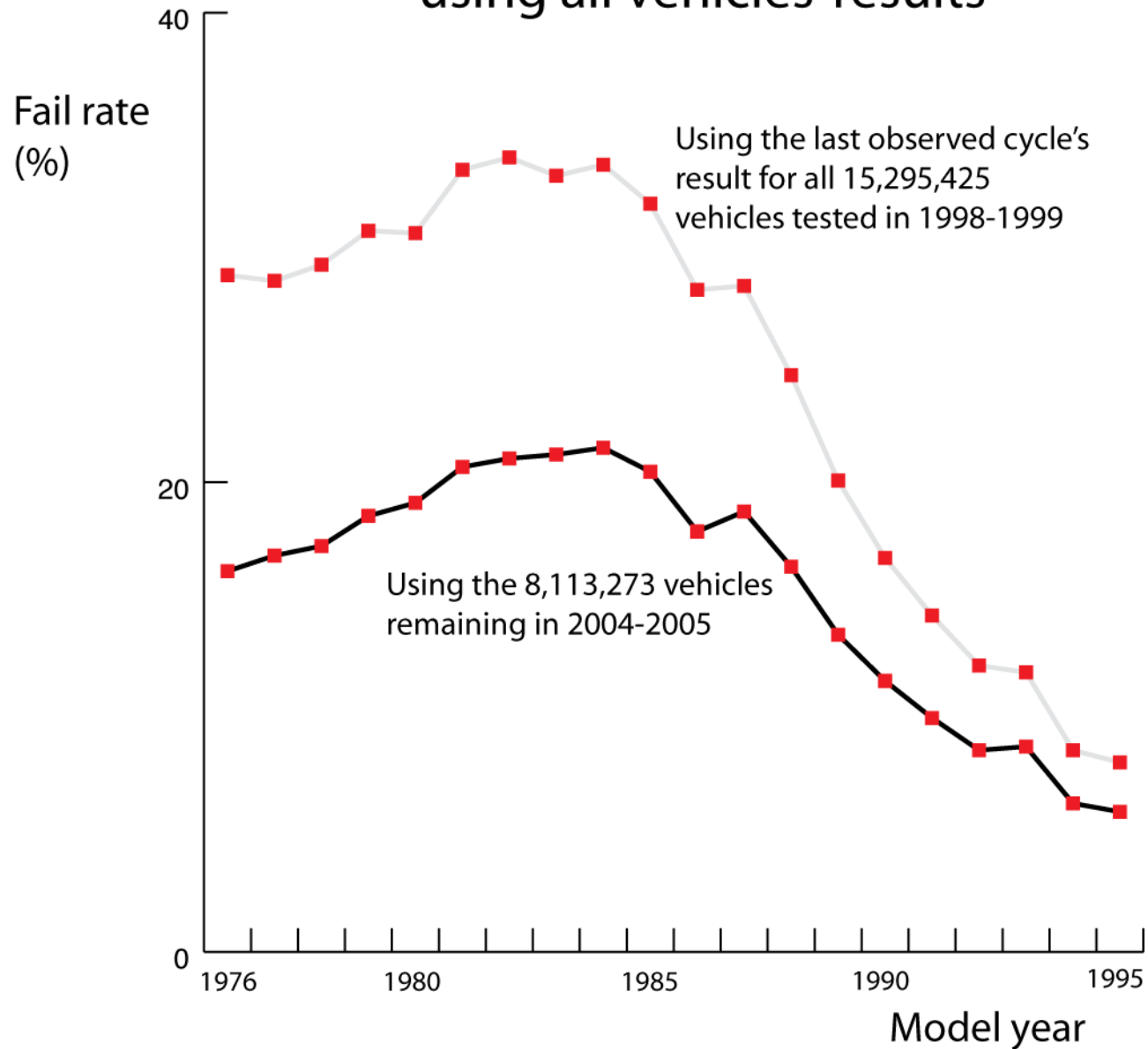
Vehicles' Past and Their Retirement

	'87 VWs	'87 Mercedes
Tested in 1998-99	27,371	19,958
% failed in 1998-99	12.36	13.47
Remaining in 2004-05	9,501	14,828
% remaining in 2004-05	34.71	74.30
% passed earlier, remaining	35.76	75.57
% failed earlier, remaining	27.25	66.12

Fail rates by model years from tests in 2004-2005



Fail rates by model years using all vehicles' results



Lessons from Vehicles' Past

1. Many vehicles have had an aborted test
2. Some vehicles have had an unexplained gap in the sequence of their tests
3. The percentage of vehicles that failed at some time over 1998-2007 is double the simple 14% fail rate
4. Vehicles with poor test histories are disproportionately retired

- Associate Producer: Rocky Carlisle
- Data provided by the Bureau of Automotive Repair
- Analysis by a MAC-Pro with two 3 GHz dual-core Xeon Intel chips
- Produced on location at the Department of Agricultural and Resource Economics, University of California, Davis